

# FM01

## Poster Session

09:00 – 11:00

Room : base 2nd Floor-Zillertal

Chair1 : Hie sik Kim ( Univ. of Seoul, Korea )

Chair2 : Tae-Kyu Kwon ( Chonbuk Nat'l Univ., Korea )

FM01-37

### Development of a Washout Algorithm Using the Signal Compression Method

Eu Gene Kang, Ki Sung You, Min Cheol Lee(Pusan Nat'l Univ., KOREA)

Vehicle driving simulator is a virtual reality device which makes a human being feel as if the one drives a vehicle actually. Unlike actual vehicle, the simulator has limited kinematic workspace and bounded dynamic characteristics. So it is difficult to simulate dynamic motions of a multi-body vehicle model fully. In order to overcome these problems, washout algorithm which restricts workspace of the simulator within the kinematic limits is needed, and analysis of dynamic characteristics is required also. However, it is difficult to select the proper cutoff frequency of filters in washout algorithm. This paper introduces the signal compression method as an effective method to analyze the sim...

FM01-39

### Immune Based Intelligent Tuning of the 2-DOF PID Controller for Thermal Power Plant

Dong Hwa Kim (Hanbat Nat'l Univ., KOREA)

Contents 1Abstract- In the thermal power plant, there are six manipulated variables; main steam flow, feedwater flow, air flow, spray flow, fuel flow, and gas recirculation flow. Therefore, the thermal power plant control system is a multi-input and output system. In the control system, the main steam temperature typically is regulated by the fuel flow rate and the spray flow rate, and the reheater steam temperature is regulated by the gas recirculation flow rate. Up to the present time, the PID controller has been used to operate this system. This paper focuses on the characteristic comparison of the PID controller, the modified 2-DOF PID Controller on the DCS, in order to design an optimal...

FM01-41

### Vehicle Simulator and it's Lateral Control by the Dead-Reckoning Positioning

Hyo Shin Song, Ju Yong Choi, Sang In Eum, Seong Ki Ha(Pusan Nat'l Univ., KOREA), Jong Il Bae(Pukyong Nat'l Univ., KOREA), Man Hyung Lee(Pusan Nat'l Univ., KOREA)

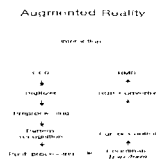
A vehicle simulator is made here to simulate the lateral control of vehicles. Dead-reckoning sensors which consist of gyroscopes and accelerometers are utilized for the positioning of it. A significant side-slip occurs when the developed vehicle is drove autonomously. To cope with the side-slip, the vehicle is steered to follow the reference yaw rate which is generated by the relationship between the target point and the position of vehicle. The experimental results show the good performances of lane tracking and the passenger comfort.

FM01-38

### Direct Input device based on Augmented Reality

Keunyoung Kim, Hyunjae Kang, Kyunghwan Kim(KIST, KOREA)

- Introduction
- Preprocessing
- Pattern Recognition
- Post Processing
- Calibration and Coordinate Transformation
- Experiments and Result
- Conclusions



FM01-40

### A realization Fuzzy PI and Fuzzy PD Controller using a compensation Fuzzy Algorithms

Seung Cheol Kim, Yeon Gyu Choo(Chin-Ju Nat'l Univ., KOREA), Shin Chul Kang(Nam-Hae College), Young Do Lim, Boo Kwi Choi, Ihn Yong Lee(Dong-A Univ., KOREA)

- I . Introduction
- ▶ The PID(Proportional-Integral-Derivative) controller is widely used in the industry it can be implemented easily for a typical second order plant.
- ▶ The parameters of PID controller should be adapted complicatedly if a plant is various or the load is present.
- ▶ For solving the problem, many control techniques have been developed.
- ▶ A major method is a hybrid Fuzzy-PID controller. But, in case of using this method, we can not obtain characteristic of rapidly response and not achieved compensation on disturbance.
- ▶ Therefore, we will use compensator fuzzy controller a front Hybrid type fuzzy-PID controller...

FM01-42

### Lateral Control of Vehicles Using Vision System

Eun Joo Kim , Chang Sub Kim, Sung Gi Ha(Pusan Nat'l Univ., KOREA), Kang Sub Yoon(Daegu Univ., KOREA), Man Hyung Lee(Pusan Nat'l Univ., KOREA)

The LQG/LTR controller is a robust and stable control which is systematic method with a view of engineering. And the scheme is adopted for the design of the controller to reduce the effects of the disturbances. In this paper, We develop an algorithm that decides the distance and directions between the guide line that is made by a series of magnets and MR sensors of vehicle. LQG/LTR and Controller Design of Lateral Control System for a vehicle is developed with 3 DOF (degree-of-freedom) model. The performance has been compared for the employed two types of controllers via computed simulations. The results show that the controller provides more robustness property for t...